Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-23. (Canceled)

24. (New) A method for determining a pulse train pattern including a pulse whose level is set to a level corresponding to a level of a recording power set to be higher than a reproducing power and a pulse whose level is set to a level corresponding to a level of a bottom power set to be higher than the reproducing power and adapted for modulating the power of a laser beam used for recording data in a write-once type optical recording medium, the method comprising:

varying the level of the bottom power while fixing the recording power at a predetermined level;

modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium;

reproducing the first test signals;

determining an optimum level of the bottom power based on the thus reproduced first test signals;

varying the level of the recording power while fixing the bottom power at the optimum level;

modulating the power of the laser beam in accordance with the pulse train patterns to record second test signals in the optical recording medium;

reproducing the second test signals; and

determining an optimum level of the recording power based on the thus reproduced second test signals.

25. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein the optimum level of the bottom power of the laser beam is determined by:

varying the level of the recording power while fixing the level of the bottom power at a level substantially equal to the level of the reproducing power;

modulating the power of the laser beam in accordance with the pulse train patterns to record third test signals in the write-once type optical recording medium;

reproducing the third test signals;

tentatively determining optimum level of the recording power based on the thus reproduced third test signals;

varying the level of the bottom power while fixing the recording power at the tentatively determined optimum level;

modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium;

reproducing the first test signals; and

determining an optimum level of the bottom power based on the thus reproduced first test signals.

26. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals.

27. (New) The method for determining a pulse train pattern in accordance with Claim 26, wherein the optimum level of the bottom power is determined as a level of the bottom power when the amplitude of the reproduced first test signal becomes maximum.

28. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein the optimum level of the recording power is tentatively determined based on at least one of jitter and error rates of the reproduced second test signals.

29. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein the optimum level of the recording power is determined based on at least one of jitter and error rates of the reproduced second test signals.

30. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein the optical recording medium comprises a light transmission layer, and a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.

31. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein data are recorded in the optical recording medium by projecting a laser beam having a wavelength equal to or shorter than 450 nm thereonto.

32. (New) The method for determining a pulse train pattern in accordance with Claim 25, wherein data are recorded in the optical recording medium by employing an objective lens and a laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq$ 640 nm, and projecting the laser beam onto the optical recording medium via the objective lens.

33. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals.

34. (New) The method for determining a pulse train pattern in accordance with Claim 33, wherein the optimum level of the bottom power is determined as a level of the bottom power when the amplitude of the reproduced first test signal becomes maximum.

35. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein the optimum level of the recording power is determined based on at least one of jitter and error rates of the reproduced second test signals.

36. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein the optical recording medium comprises a light transmission layer and a first recording layer and second recording layer formed between the substrate and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.

37. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein data are recorded in the optical recording medium by projecting a laser beam having a wavelength equal to or shorter than 450 nm thereonto.

38. (New) The method for determining a pulse train pattern in accordance with Claim 24, wherein data are recorded in the optical recording medium by employing an objective lens and a laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq$ 640 nm, and projecting the laser beam onto the optical recording medium via the objective lens.

39. (New) An apparatus for recording data in a write-once type optical recording medium comprising laser beam power modulation pattern determining means for determining a pulse train pattern and for modulating the power of a laser beam used for recording data in the write-once type optical recording medium, the pulse train including a pulse whose level is set to a level corresponding to a level of a recording power set to be higher than a reproducing power and a pulse whose level is set to a level corresponding to a level of a bottom power set to be higher than the reproducing power, the laser beam power modulation pattern determining means being constituted so as to:

vary the level of the bottom power while fixing the recording power at a predetermined level;

modulate the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium;

reproduce the first test signals;

determine an optimum level of the bottom power based on amplitudes of the thus reproduced first test signals;

vary the level of the recording power while fixing the bottom power at the optimum level;

modulate the power of the laser beam in accordance with the pulse train patterns to record second test signals in the optical recording medium;

reproduce the second test signals; and

determine an optimum level of the recording power based on at least one of jitter and error rates of the thus reproduced second test signals.

40. (New) The apparatus for recording data in a write-once type optical recording medium in accordance with Claim 39, wherein the laser beam power modulation pattern determining means is constituted so as to determine the optimum level of the bottom power of the laser beam by:

varying the level of the recording power while fixing the level of the bottom power at a level substantially equal to the level of the reproducing power;

modulating the power of the laser beam in accordance with the pulse train patterns to record third test signals in the write-once type optical recording medium;

reproducing the third test signals;

tentatively determining the optimum level of the recording power based on the thus reproduced third test signals;

fixing the recording power at the tentatively determined optimum level and varying the level of the bottom power;

modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium;

reproducing the first test signals; and

determining the optimum level of the bottom power based on at least one of jitter, amplitude, and error rates of the thus reproduced first test signals.

41. (New) The apparatus for recording data in a write-once type optical recording medium in accordance with Claim 40, wherein the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals.

42. (New) The apparatus for recording data in a write-once type optical recording medium in accordance with Claim 39, wherein the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals.

43. (New) A write-once type optical recording medium comprising a substrate and at least one recording layer disposed on the substrate and being constituted so that data are recorded by projecting a laser beam whose power is modulated in accordance with a pulse train pattern, the pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power and a bottom power, onto the at least one recording layer to form a recording mark in the at least one recording layer, the write-once type optical recording medium being recorded with modulation pattern setting data for setting a pulse train pattern used for modulating a power of the laser beam, which modulation pattern setting data are produced by:

determining pulse train patterns by varying the level of the bottom power while fixing the recording power at a predetermined level;

modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium;

reproducing the first test signals;

determining an optimum level of the bottom power based on the thus reproduced first test signals;

varying the level of the recording power while fixing the bottom power at the optimum level;

modulating the power of the laser beam in accordance with the pulse train patterns to record second test signals in the optical recording medium;

reproducing the second test signals; and

determining an optimum level of the recording power based on the thus reproduced second test signals.

44. (New) The write-once type optical recording medium in accordance with Claim 43, wherein the modulation pattern setting data are produced by determining pulse train patterns by varying the level of the recording power while fixing the level of the bottom power at a level substantially equal to the level of the reproducing power, modulating the power of the laser beam in accordance with the pulse train patterns to record third test signals in the write-once type optical recording medium, reproducing the third test signals, tentatively determining the optimum level of the recording power based on the thus reproduced third test signals, varying the level of the bottom power while fixing the recording power at the tentatively determined optimum level, modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium, reproducing the first test signals, determining the optimum level of the bottom power based on the thus reproduced first test signals.

45. (New) The write-once type optical recording medium in accordance with Claim 44, wherein the modulation pattern setting data are produced by determining the optimum level of the bottom power as a level of the bottom power when the amplitude of the reproduced first test signal becomes maximum.

46. (New) The write-once type optical recording medium in accordance with Claim 44, wherein the modulation pattern setting data are produced by determining the optimum level of the recording power based on at least one of jitter and error rates of the reproduced second test signals.

47. (New) The write-once type optical recording medium in accordance with Claim 44, wherein the modulation pattern setting data are produced by tentatively determining the optimum level of the recording power based on at least one of jitter and error rates of the reproduced second test signals.

48. (New) The write-once type optical recording medium in accordance with Claim 44, which further comprises a light transmission layer, and a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.

49. (New) The write-once type optical recording medium in accordance with Claim 43, wherein the modulation pattern setting data are produced by determining the optimum level of the bottom power as a level of the bottom power when the amplitude of the reproduced first test signal becomes maximum.

50. (New) The write-once type optical recording medium in accordance with Claim 43, wherein the modulation pattern setting data are produced by determining the optimum level of the recording power based on at least one of jitter and error rates of the reproduced second test signals.

51. (New) The write-once type optical recording medium in accordance with Claim 43, which further comprises a light transmission layer, and a first recording layer and a

second recording layer formed between the substrate and the light transmission layer, and is constituted so that recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.